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yond it, abounding in valuable products, to which the Parana and Paraguay furnished the only available means of transport.

This policy on the part of Buenos Ayres provoked a wide resistance, which was aided by France and England, and resulted in the flight of Rosas, the Dictator of that province, in February, 1852. This event at once changed the aspect of affairs. On the 1st of October following, in accordance with a decree of the Provisional Director of the Argentine Confederation, dated 31st August, the navigation of the Rio de la Plata, the Parana, and the Paraguay were opened to all foreign vessels, and on the 13th October of the same year, the representatives of the province of Buenos Ayres recognized the authority of the decree.

Thus the great rivers, after being closed against general commerce from the first occupation of the country by the Spaniards, were declared free. The consequences of this important concession are in the future, but there can be no doubt of its being the cause of an early development of the whole country drained by these magnificent streams, which have, according to a rough estimate, and including their navigable tributaries, a line of navigation not less than 10,000 miles in length.

GEOGRAPHY OF THE UNITED STATES OF AMERICA.

NO. 1.

A SERIES of articles upon the Geography of the United States, having very considerable reference to meteorological phenomena, appropriately commence with a description of the immediate valley of the Mississippi River, as it occupies the lowest depression in the great interior basin, and possesses a temperature and rain-fall less affected by causes disturbing what may be called a meteorological equilibrium, than any other portions of the continent at similar distances from the sea. The data thus obtained may be taken as a standard, or unit of measure, to which to refer the changes in the earth's surface as we leave either bank of the river,

and the consequent changes in meteoric conditions—a method of proceeding which will greatly simplify and facilitate future enquiry.

At the mouth of the Mississippi River, the astronomical, and actual or observed, mean temperatures, very nearly coincide. At New Orleans, (104 miles from its mouth), which is elevated only ten feet above the Gulf, in lat. 30° N., the astronomical mean temperature is $71^{\circ} 01'$, while the observed mean temperature is 69° Fahr. On proceeding northwardly, the difference between the two rapidly increases, owing to the increased elevation of the bed of the river, and to the influence of the lofty plateaus and mountain ranges that form the boundaries of its hydrographic basin. On the parallel of 35° the astronomical mean temperature is $67^{\circ} 17'$; the observed mean 60° . On the parallel of 40° the astronomical is $62^{\circ} 81'$; the observed 53° ; and on the parallel of 45° the astronomical is $57^{\circ} 98'$; the observed mean temperature $44\frac{1}{2}^{\circ}$. Other meteorological changes, particularly in the amount of rain-fall, follow, though not with similar regularity or extent. To show the degree of the southerly slope of the great basin of the Mississippi, and how far, what may be termed normal conditions are affected as it is ascended, a tabular statement is subjoined of the latitude of the several points of observation; their distances from the Gulf, and from each other; their elevation* above the sea; the rate of the descent of the river between them; their mean annual temperatures and rain-fall—with their respective means for the seasons. The authority for altitudes is

* The only interruption to the general character of the Mississippi from the Gulf of Mexico to the Falls of St. Anthony, are the Des Moines and Rock Island Rapids. At both of these, the river runs for a considerable distance over beds of solid rock, having inclinations, as will be seen in the table, of nearly two feet to the mile. In stages of high water they present no obstacle to the passage of the largest class steamers; but at low water, only boats of light draft can pass them. The falls on the Ohio at Louisville, and on the Wabash at Vincennes, are of a similar character, and are probably caused by a continuation of the same outcrop, that causes the Rapids at the mouth of the Des Moines River. With these exceptions, the river below the mouth of the Ohio has a muddy bed; north of this point the river bed of gravel or sand, the solid rock appearing, we believe, is only in the instances named.

Nicollet, in most instances; and for temperature and rain-fall, the observations at the United States' military posts.

Places of observation.	Latitudes.	Elevation above sea.	Distance from Gulf of Mexico.	Distance between places.	Descent per mile betw'n places.	Mean temperature.					Mean rain-fall in inches.				
						Annual.	Spring.	Summer.	Autumn.	Winter.	Annual.	Spring.	Summer.	Autumn.	Winter.
New Orleans	29° 57'	105	104	104	1.2	69.9	70.0	82.3	70.7	56.5	51.21	10.57	13.31	12.67	15.22
Mouth of Red River.....	31° 07'	76.	340	236	..	69.9	70.0	82.3	70.7	56.5	51.21	10.57	13.31	12.67	15.22
Natchez.....	31° 34'	86.	340	236	..	67.1	68.0	81.0	67.1	52.2	57.75	14.92	13.06	13.33	16.44
Memphis.....	35° 08'	195.7	970	564	..	60.8	61.1	78.1	61.4	42.6	41.80	11.00	7.80	7.90	15.00
Mouth of Ohio River	36° 58'	275	1,216	246	2.6	..	..	..	..	..	..	..	..	..	..
St. Louis.....	38° 40'	364	1,390	174	..	54.5	54.1	76.2	55.4	32.3	42.32	12.86	14.14	8.94	6.29
Mouth of Illinois River	38° 58'	382	1,426	36	6.0	..	..	..	..	..	..	..	..	..	..
Mouth of Des Moines River	40° 24'	444	1,594	168	4.6	..	..	..	..	..	..	..	..	..	..
Montrose, (at head of Lower Rapids).....	40° 31'	470	1,609	15	20.8	..	..	..	..	..	..	..	..	..	..
Muscatine.....	41° 26'	..	1,693	69	..	46.7	46.4	68.6	48.9	22.8	44.33	11.19	15.08	10.34	6.72
Rock Island.....	41° 30'	528	1,722	29	6.1	50.3	50.5	74.1	51.7	24.9	..	..	..	..	..
Head of Upper Rapids.....	41° 41'	554	1,737	15	20.8	..	..	..	..	..	..	..	..	..	..
Dubuque.....	42° 29'	..	1,868	111	..	49.4	50.4	72.1	52.5	22.5	31.80	7.63	11.87	7.90	4.0
Prairie du Chien.....	43° 05'	627	1,932	84	4.5	47.6	48.7	72.3	48.3	21.2	..	..	..	..	..
Mouth of Black River	44° 10'	732	2,035	103	6.5	..	..	..	..	..	..	..	..	..	..
Mouth of St. Croix River.....	44° 42'	720	2,150	115	5.0	..	..	..	..	..	..	..	..	..	..
Mouth of Minnesota River.....	44° 53'	744	2,192	42	4.6	44.6	45.6	70.6	45.9	16.1	25.43	6.61	10.92	5.98	1.92

From the above statement it will be seen that the rate of descent of the Mississippi below its junction with the Ohio is 2.6 inches to the

mile; while the rate between the mouth of the Ohio and the mouth of the Minnesota River is 5.76 inches. That portion of the river extending from the mouth of the Ohio to the head of Rock Island Rapids, falls more rapidly than that between the latter place and the Minnesota River—the rate in the one case being 6.4 inches to the mile, and in the other, 5 inches. The rate of descent of the upper portions of the Missouri River, compared with the lower, present a similar anomaly. The St. Lawrence River has in the same manner the greatest portion of its descent midway between its sources and outlet. The total fall of the Mississippi, from the mouth of the Minnesota to the Gulf, is 744 feet in a distance of 2,192 miles; or at the rate of 4.07 inches to the mile.

In ascending from the mouth of the Minnesota, the lowest depression in the great interior basin is occupied by that river. A short distance from its junction with the Mississippi, the latter has an abrupt fall of 47 feet, which forms a complete bar to the further progress of steamboats. Its navigation from this point to its source is frequently interrupted by falls and rapids. From the Falls of St. Anthony to Itasca Lake, the source of the river, the total descent is 831 feet, in a distance of 704 miles—or at the rate of 14.15 inches to the mile. Upon portions of the river between the rapids, the descent is sufficiently gentle for navigation, and steamboats are now running from St. Anthony to Sauk Rapids, a distance of about 60 miles. Above these rapids there are still longer stretches of slack-water. From Lake Itasca the distance to the summit of the dividing ridge between the basin of the Mississippi and that of the Red River of the North is only 6 miles. This is elevated 1,680 feet above the Gulf, and is 2,896 miles from it by the course of the river.

As before stated the great depression in the continent, between the Gulf of Mexico and Hudson's Bay, is occupied by the Minnesota River, though much inferior in size to the Mississippi at their junction. This river rises in Big Stone Lake, 441 miles from its mouth. The

lower portion of it has a rate of fall still more gentle than the upper portion of the Mississippi. For the first 190 miles of its course it falls 67 feet, or at the rate of 4.2 inches to the mile. In 441 miles it falls 222 feet, or 6 inches to the mile. Big Stone Lake, with a comparatively slight expenditure, could probably be made accessible to steamboats from the Gulf of Mexico. At present boats ascend the Minnesota more than 200 miles. Big Stone Lake is on the same level with Lake Travers, the source of Red River of the North. They lie contiguous, and could be easily connected. It is stated that in wet seasons, canoes pass without difficulty from one to the other. Red River is navigable from Lake Winnepeg nearly to Lake Travers, and could easily be rendered so to the lake. The day may not be far distant in which steamboats will pass from the Gulf of Mexico to the head of Lake Winnepeg, a distance of 3,500 miles, and, by an improvement of the falls at the mouth of the Saskatchewan, by that river, to the base of the Rocky Mountains, some 1,500 miles further. It is somewhat remarkable that the highlands at the head of the Mississippi River should have a less elevation than at the head of any of its important tributaries. Lake Winnepeg is elevated 853 feet above the sea, and is only about 113 feet below the lowest summit of the water-shed between the Gulf of Mexico and Hudson's Bay. From Lake Travers on the summit to Lake Winnepeg, the distance by a direct line is about 350 miles, and by the Red River probably 550 miles, showing a rate of descent of this river of about 2.5 inches to the mile. These facts afford a striking illustration of the gentle slopes which characterize the great interior basin in both northerly and southerly directions. They descend so gradually that the rivers draining them are navigable for steamboats almost to their sources, and open markets to far distant regions, which, with rivers falling from them at the rate of 12 inches to the mile, must for generations, if not for centuries, have remained unoccupied wastes. As the head waters of the Mississippi and the Red River of the North interlock, and on the

same level, so that with a slight improvement, steamboats could be made to pass from the Gulf of Mexico to the hydrographic basin of Hudson's Bay; in the same manner the head waters of the Illinois River and the Upper Great Lakes occupy a similar level—the former, in times of floods, throwing a part of its water into Lake Michigan. A cut of 8 feet in depth would turn the waters of the lakes into the Gulf of Mexico, so nicely poised in the centre of the continent are these great inland seas. By means of the Illinois Canal large boats pass from one basin to the other. These facts present, in a remarkable manner, the provision made by nature for the internal commerce of the country. Had the dip of the southern slope of the Great Mississippi basin been at the rate of 12, instead of 4.7 inches to the mile, the entire condition and destiny of the American continent would have been changed. Instead of a nation of 30,000,000, already occupying more than 1,000,000 square miles, every portion of it traversed by natural and artificial navigable water courses, and by nearly 30,000 miles of railroad, all the territory we should have occupied would have been a narrow belt lying immediately on the sea shore, from the difficulty of carrying the bulky products of the interior to market.

The highest elevation between the Gulf of Mexico, and the rivers falling into Lake Winnepeg, west of the Missouri and its tributaries, will not probably exceed 2,000 feet. These lie at the head of Big Sioux River, and west of Big Stone Lake, at the head of the Minnesota River. The summit of the ridge, at the head of the Mississippi, is, as we have already stated, 1,680 feet. The lowest point between the Mississippi and Lake Superior, at their nearest approach in lat. 46° 45' N., is 1,324 feet, or about 700 feet above the lake, and 80 feet above the river. The hills that form the water-shed of the south shore of Lake Superior rise to an elevation of about 1,500 feet, although at the head of St. Croix river there is a depression in the summit, which is only 356 feet above the lake, and is almost exactly in the same level

with the lowest summit between the Minnesota, and the Red River of the North.

The meteorological phenomena at the different points on a river traversing 20° of latitude must, under all circumstances, be extremely varied. The difference in the mean temperature between New Orleans and the mouth of the Minnesota River, is $25^{\circ} 3$, and the difference in the mean annual rain-fall, is 25.78 inches: in other words, twice as much rain falls at the former as at the latter place. But the difference of summer temperature between the two places is only $11^{\circ} 7$ *Fahr.*—that at New Orleans being $82^{\circ} 3$, and at the mouth of the Minnesota, $70^{\circ} 6$. At New Orleans the average amount of rain-fall for summer is 13.35 inches, and at the mouth of the Minnesota, 10.92 inches. As only one important crop is annually grown in any part of the valley, and as every portion of it has, for the summer months, sufficient heat and moisture for the maturing of the crops appropriate to its different portions, the economic difference between the climate of New Orleans and St. Paul is by no means to be measured by the difference of heat or rain-fall for the year at the two places. It is probable that the products of the soil per acre in Minnesota will be quite as valuable as the average products of any of the States bordering the river, though a higher culture may be required as we ascend northward.

Of the crops in the Mississippi Valley, Indian corn is common to the whole extent of it. In all the Northern States this matures in favorable seasons in from 100 to 120 days. Oats cover the next widest belt, their successful culture extending very nearly to the Gulf of Mexico. Irish potatoes come next. Commencing from the Gulf is a narrow belt of sugar lands extending north to lat 31° . The cotton belt extends from the Gulf to lat. 35° . At this parallel commences the cultivation of tobacco and hemp, which in the Mississippi Valley is confined chiefly to the States of Tennessee, Kentucky and Missouri. The cultivation of wheat, oats and potatoes extends far north into the British possessions. Throughout the whole

extent of the Valley of the Mississippi, forest trees, bearing witness to the excellence of the soil and climate, have a vigorous and thrifty growth and attain a large size. In all respects this great valley for its whole extent is wonderfully fitted for the abode of man.

The following table will show the elevation of different points of the upper portions of the basin of the Mississippi above, and their distances from, the Gulf of Mexico:

	Distance from the G. of Mexico. Miles.	Elevat'n above the G. of M. Feet.
Summit of Dividing Ridge at the head of the Mississippi River.....	2,896	1,680
Itasca Lake.....	2,890	1,578
Cass Lake.....	2,755	1,402
Swan River.....	2,564	1,290
Mouth of Crow Wing River.....	2,380	1,130
Falls of St. Anthony.....	2,200	856
Mouth of Minnesota River.....	2,192	744
Height of Land at head of Big Sioux River.....	.....	1,896
Coteau des Prairies.....	.....	2,000
Devil's Lake.....	.....	1,476
Coteau des Prairies du Missouri.....	.....	2,096

MOUNTAINS OF NORTH CAROLINA.

It is not unknown among scientific men that the highest peak in the United States, east of the Rocky Mountains, is in the magnificent mountain scenery of North Carolina and East Tennessee, which may be called the Switzerland of the Atlantic States.

Heretofore, it has been supposed that Mount Mitchell, (named from the late Prof. Mitchell, of the University of N. C., who first measured its true altitude, as has been conclusively shown by Professor Charles Phillips, of the same institution,) is the highest peak. It is 6,711 feet high. It would, however, appear from the communication below, that there is a still higher peak in the great Smoky or Unaka range of mountains, on the line between North Carolina and Tennessee, near the head waters of the Oconaluftee and Little Pigeon rivers.

Messrs. Editors:

I have recently had letters from S. B. Buckley, Esq., giving me information of the results of recent explorations he has been making